

CLAIMSWhat is Claimed is:

1 1. A method for interference management of a
 2 processing communications satellite serving multiple user terminals in
 3 a satellite based cellular communications system, said method
 4 comprising:

5 receiving a request for service from a user terminal;

6 accessing a communications system parameter;

7 determining a connection parameter to minimize intra-
 8 system interference based upon the communications system
 9 parameter for the user terminal;

10 allocating the connection parameter to this user
 11 terminal; and

12 making a communications connection with the
 13 processing communication satellite by the user terminal using the
 14 connection parameter.

1 2. The method as defined in claim 1 further
 2 comprising accessing a plurality of communications system
 3 parameters.

1 3. The method as defined in claim 2 wherein said
 2 plurality of communications system parameters includes active user
 3 terminal parameters.

1 4. The method as defined in claim 3 wherein said
 2 active user terminal parameters includes locations of each active user
 3 terminal and frequency channels and time slots allocated to active
 4 user terminals.

1 5. The method as defined in claim 2 wherein said
 2 plurality of communications system parameters includes user
 3 database parameters, antenna pattern parameters,
 4 spacecraft/antenna pointing error parameters, and link condition
 5 database parameters.

1 6. The method as defined in claim 1 further
 2 comprising monitoring if the communications connection is still active.

1 7. The method as defined in claim 6 further
 2 comprising redetermining the connection parameter for the user
 3 terminal based upon an updated communications system parameter.

1 8. The method as defined in claim 1 wherein the
 2 one connection parameter is a frequency channel.

1 9. The method as defined in claim 1 wherein the
 2 connection parameter is a time slot.

1 10. The method as defined in claim 1 further
 2 comprising updating the communications system parameter after the
 3 communications connection ends.

1 ~~11.~~ A satellite based cellular communications system
2 for servicing multiple user terminals, said satellite based cellular
3 communications system comprising:

4 a processing communications satellite, said processing
5 communications satellite supporting communications uplinks and
6 communications downlinks between the multiple user terminals; and

7 a network operations center having a central control
8 processor, said network operations center communicating with said
9 processing communications satellite on said communications uplinks
10 and said communications downlinks, said central control processor
11 minimizes intra-system interference between the multiple user
12 terminals by allocating a connection parameter to each user terminal
13 based upon accessing a plurality of communications system
14 parameters.

1 12. The satellite based cellular communications
2 system as defined in claim 11 wherein said processing
3 communications satellite supports the multiple user terminals via a
4 multi-beam antenna.

1 13. The satellite based cellular communications
2 system as defined in claim 11 wherein said central control processor
3 allocates a frequency channel and time slot for each user terminal
4 based upon locations of active user terminals.

14. The satellite based cellular communications system as defined in claim 11 wherein said plurality of communications system parameters includes user database parameters, antenna pattern parameters, spacecraft/antenna pointing error parameters, and link condition database parameters.

15. The satellite based cellular communications systems as defined in claim 11 wherein said central control processor periodically re-allocates said connection parameters to each user terminal based upon an updated plurality of communications system parameters.

16. A method for interference management of a communications system servicing multiple user terminals, said method comprising:

receiving a request for service from a user terminal;

accessing a plurality of communications system parameters;

determining a frequency channel and time slot parameter allocation for the user terminal to minimize intra-system interference based upon the plurality of communications system parameters;

allocating the frequency channel and time slot parameter to the user terminal;

13 making a communications connection by the user
 14 terminal using the frequency channel and time slot parameter; and
 15 periodically redetermining the frequency channel and
 16 time slot parameter allocation for the user terminal to continue to
 17 minimize intra-system interference.

1 17. The method as defined in claim 16 further
 2 comprising redetermining the frequency channel and time slot
 3 allocation after a determination is made that the communications
 4 connection is still active.

1 18. The method as defined in claim 16 comprising
 2 accessing the plurality of communications system parameters from a
 3 user database, antenna pattern database, spacecraft/antenna
 4 pointing error database and link condition database.

1 19. The method as defined in claim 18 further
 2 comprising updating the databases after the communication
 3 connection has ended.

1 20. The method as defined in claim 16 comprising
 2 including within the plurality of communications system parameters
 3 location of active user terminals and frequency channel and time slots
 4 allocated to the active user terminals.